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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,073	02/08/2001	Jin J. Chang	IL-10719	7486

7590 01/06/2004  
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EXAMINER

TRAN, LEN

ART UNIT PAPER NUMBER

1725

DATE MAILED: 01/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/781,073

Applicant(s)

CHANG ET AL.



Examiner

Len Tran

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 13, 19, 21-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Durheim (US 6,070,813).

Durheim discloses a method for drilling a hole in a material comprising the steps of generating a first power percussive laser beam, focused on the diameter smaller than the desired hole, directing the laser to the first material to remove the bulk of the material, generating a second trepanning laser beam, and directing and trepanning by tracing along the diameter and the hole being formed for expanding the rag hole for cleaning up the rag hole. The second laser beam is focused to a spot a number of times smaller than the diameter of the rag hole (figures 2a-2e, 3a-3e, col. 4, lines 47-54, col. 5, lines 20-38, col. 8, lines 9-51). Durheim further teaches controlling the first laser beam so that the final hole does not extend entirely through the material and the first laser beam leaves a thin membrane at the bottom of the hole (figures 2a-2e).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 14-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durheim (US '813) as applied to claim 13 above in paragraph 2, and further in view of Inagawa et al (US 5,166,493).

Durheim does not explicitly disclose the method of focusing a second laser to a spot from one to ten times smaller than the diameter of the ragged hole.

However, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to focus the laser at a smaller diameter than the desired hole, since trepanning, or cleaning the edges would follow after the first drill.

Durheim discloses the claimed invention above, but fails to teach first laser beam is an infrared laser beam, a second laser has shorter wavelength, the second laser is focused on a smaller diameter than the original drilled spot, and that both lasers are produced by a single laser.

However, Inagawa et al disclose the method of having two lasers for drilling a hole comprising the first laser to have a larger wavelength than the than the second laser (abstract) and that the drilling of the second laser has a smaller diameter than the first drilling (col. 4, lines 12-18). Inagawa et al disclose the above differences for the purpose of obtaining a smooth surface with less irregularities (col. 2, lines 40-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have different wavelengths as taught by Inagawa et al, in Durheim in order to obtain a smooth final surface after drilling.

#### ***Response to Arguments***

6. Applicant's arguments filed 9/12/03 have been fully considered but they are not persuasive.

Applicant argues Durheim reference does not teach the steps of "generating a first high power percussive laser beam, said high power percussive laser beam being focused to a first high power percussive beam spot diameter that is slightly smaller than said final diameter of said hole". Examiner respectfully disagrees, since Durheim reference discloses the claimed invention in col. 8, lines 17-30."

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Len Tran whose telephone number is (703)605-1175. The examiner can normally be reached on M-F, 8:30 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 703-308-3318. The fax phone number for the organization where this application or proceeding is assigned is (703)305-3602.

Art Unit: 1725

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

Len Tran  
Examiner  
Art Unit 1725

LT  
December 23, 2003



TOM DUNN  
SUPERVISORY PATENT EXAMINER  
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